AMENDED CLAIMS

1. Method for the production of a swage in a workpiece in which material is removed by means of a laser beam,

characterised in that

the side walls of the swage are treated by means of a laser beam and/or a processing means.

2. Method according to claim 1, characterised in that the side walls are treated over all or part of the depth of the swage and/or all or a part of the circumference of the swage.

3. Method according to one or more of the preceding claims, characterised in that the treatment of the side wall is carried out after, during the removal of the material in layers, several layers have been removed without a treatment of the side wall.

4. Method according to one or more of the preceding claims, characterised in that the treatment of the side wall is performed with a reduced power of the laser beam and/or defocused at the treated position and/or with a higher beam guidance speed and/or with a reduced energy input per surface unit.

5. Method according to one or more of the preceding claims, characterised in that the treatment of the side wall is performed automatically in accordance with swage data.

6. Method according to one or more of the preceding claims, characterised in that the treatment of the side wall is performed with a relative positioning of the workpiece and the laser source which is different from the relative positioning during the material removal in layers.

7. Method according to one or more of the preceding claims, characterised in that the side wall is measured before the treatment and that the treatment is performed in accordance with the measurement.

8. Method according to one or more of the preceding claims, characterised in that the production of a swage in a workpiece is performed by removing the material in layers by means of a laser beam.

9. Method according to one or more of the preceding claims, characterised in that the processing means is a particle blast and/or an etching reagent and/or contains dry ice.

10. Method according to claim 9, characterised in that the processing means is supplied to the vicinity of the swage by means of a conduit.

11. Method according to claim 10, characterised in that the position and/or angular position of the conduit relative to the workpiece

is adjustable and/or guidable during the treatment of the side wall.

12. Method according to claim 11, characterised in that the position and/or angular position of the conduit relative to the workpiece is adjusted and/or guided in accordance with swage data and/or in accordance with measured depth data.

13. Method according to one or more of the claims 9 to 12, characterised in that at least the machine is shielded from excessive processing means during the treatment of the side walls.

14. Method according to one or more of the claims 9 to 13, characterised in that the excessive processing means is removed, particularly removed by suction, during the treatment of the side walls.

15. Method according to one or more of the claims 9 - 14, characterised in that the workpiece is automatically removed from the work area of the laser beam and moved to the vicinity of the conduit of the processing means for the treatment of the side walls.

16. Method according to one or more of the claims 9 to 14, characterised in that the conduit of the processing means is moved into the work area of the laser beam for the treatment of the side walls.

17. Method for the production of a swage in a workpiece according to one or more of the preceding claims,

characterised in that

the side walls of the swage are treated by means of ultrasonic waves.

18. Device for the production of a swage, particularly for performing the method according to one or more of the preceding claims, comprising a laser treatment means (13) and a control means (30) for the laser treatment means, characterised in that the control means is adapted to drive the laser treatment means or a feeding means (40 – 42) for the processing means for treating the side wall of the swage.

19. Device according to claim 18, characterised by a focusing means (32, 37) defocusing the laser beam at the work area during the treatment of the side wall.

20. Device according to claim 18 or 19, characterised by a power control means (34, 36) reducing the laser power during the treatment of the side wall.

21. Device according to one or more of the claims 18 to 20, characterised in that the processing means is a particle blast and/or an etching reagent and/or contains dry ice.

22. Device according to one or more of the claims 18 to 21, characterised in that the feeding means comprises a conduit (40) for the particles of the particle blast and/or the etching reagent and/or the dry ice.

23. Device according to one or more of the claims 18 to 22, characterised by a shielding means (43) shielding at least the device from the processing means.

24. Device according to one or more of the claims 18 to 23, characterised by a suction means (44 – 46) for removing excessive processing means by suction.

25. Device according to one or more of the claims 18 to 24, characterised in that the control means is adapted to drive an ultrasound means for treating the side wall of the swage.